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(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS, N.V.** [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GUTTA, Srinivas Venkata Rama** [US/US]; P.O. Box 3001, Briarcliff Manor, New York 10510-8001 (US).

(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS, N.V.; INTELLECTUAL PROPERTY & STANDARDS**, c/o BRAM, Eric M. P.O. Box 3001, Briarcliff Manor, New York 10510-8001 (US).

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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) Title: **PRESSURE MAP BASED FINGERPRINT AUTHENTICATION METHOD AND SYSTEM**

(57) Abstract: A fingerprint system (80) implements a fingerprint authentication method (20, 60) for a user fingerprint image (UFI) based on a plurality of control fingerprint images (CFI). The method involves a transformation of each control fingerprint image (CFI) into a transformed control fingerprint image (TCFI) as a function of a pressure map (PM) associated with the user fingerprint image (UFI), a matching of each transformed control fingerprint image (TCFI) to the user fingerprint image (UFI), and an authentication of the transformed control fingerprint image (TCFI) having a best match with the user fingerprint image (UFI) as an identified fingerprint image (IFI).



WO 2005/091209 A3

## INTERNATIONAL SEARCH REPORT

International Application No

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>JAIN A K ET AL: "An identity-authentication system using fingerprints"</p> <p>PROCEEDINGS OF THE IEEE, IEEE. NEW YORK, US,</p> <p>vol. 85, no. 9, September 1997 (1997-09), pages 1365-1388, XP002261867</p> <p>ISSN: 0018-9219</p> <p>cited in the application</p> <p>page 1369 - page 1373</p> <p>page 1378 - page 1379</p> <p>-----</p> <p>-/--</p>	1-21



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Neubüser, B

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2005/050894

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>ANIL JAIN ET AL: "Fingerprint matching using minutiae and texture features" PROCEEDINGS 2001 INTERNATIONAL CONFERENCE ON IMAGE PROCESSING. ICIP 2001. THESSALONIKI, GREECE, OCT. 7 - 10, 2001, INTERNATIONAL CONFERENCE ON IMAGE PROCESSING, NEW YORK, NY : IEEE, US, vol. VOL. 1 OF 3. CONF. 8, 7 October 2001 (2001-10-07), pages 282-285, XP010563338 ISBN: 0-7803-6725-1            Section 2. Background, last paragraph            Section 3.1 Image Alignment            Section 3.4 Matching</p>	1-21
X	<p>BOVIK, AL (EDITOR); JAIN, ANIL K. (AUTHOR): "Handbook of Image and Video Processing, Section 10.5 Fingerprint Classification and Matching" 2000, ACADEMIC PRESS, SAN DIEGO, US 275840, XP002328913 ISBN: 0-12-119790-5            cited in the application            pages 825-826            pages 831-833</p>	1-21
X	<p>US 6 185 318 B1 (JAIN ANIL K ET AL) 6 February 2001 (2001-02-06)            cited in the application            abstract; figures 6,7,9,17</p>	1-21
A	<p>SHIGEMATSU S ET AL: "A SINGLE-CHIP FINGERPRINT SENSOR AND IDENTIFIER" IEEE JOURNAL OF SOLID-STATE CIRCUITS, IEEE INC. NEW YORK, US, vol. 34, no. 12, December 1999 (1999-12), pages 1852-1859, XP001149326 ISSN: 0018-9200            Section II.C. Fingerprint Identification            Section III. Identifying Pixel            abstract</p>	1-21
A	<p>US 6 578 436 B1 (GANAPATHI SRINAVASAN K ET AL) 17 June 2003 (2003-06-17)            cited in the application            abstract</p>	1,10,13

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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